

**New Mexico Space Grant Consortium (NMSGC)
Strategic Plan
2015-2020**

Pertinent Space Grant Federal Legislation

Congress established the National Space Grant College and Fellowship Program (Space Grant) with Title II of the National Aeronautics and Space Administration Authorization Act of 1988. The National Space Grant College and Fellowship Program, through the designation of Space Grant consortia and the establishment of Space Grant programs and fellowships, was designed to broaden the base of universities and individuals contributing to and benefiting from aerospace science and technology and ultimately contribute to the development and utilization of space resources.

The National Aeronautics and Space Administration (NASA) was charged with implementation and oversight of this program. (Public L. 100-147, October 30, 1987, 101 Stat. 869-875, 42 U.S.C. 2486; and 14 CFR Part 1259, March 13, 1989.) NASA currently distributes funds to 52 university-based Space Grant Consortia in all fifty states, Puerto Rico and the District of Columbia. Each consortium is funded annually with a Space Grant award that requires a 100 percent match and with funds for fellowships. Designation of Space Grant consortia shall be for five years and may be continued based on a merit review at the beginning of the fifth year and at five year intervals thereafter.

Each Space Grant consortium shall designate a Space Grant Program Director; establish a Space Grant office; develop and implement programs of public service, interdisciplinary space-related programs, advisory activities, and cooperation with industry, research laboratories, State and local governments, and other colleges and universities, particularly institutions in their State and/or region with significantly large enrollments of racial minorities who are underrepresented in science and technology; and provide nonfederal matching funds for their Space Grant program equal to that provided by NASA.

Vision

NMSGC continues to have a prominent and permanent presence throughout New Mexico. NMSGC is the lead agency of coordination and cooperation to engage Americans in space related technical education and research.

Mission

NMSGC advances lifelong learning in the areas related to aerospace science, technology, aeronautics, and space exploration to enhance knowledge, education, innovation, economic vitality, and stewardship of Earth. NMSGC advances the economic, education, and scientific benefits of space related activities and assets in New Mexico.

Goals

Goal 1: Student Flight Programs- NASA Strategic Goals, Objective 2.4

NMSGC acts as a catalyst to increase the number of student flight experiments to suborbital, orbital space, and/or the International Space Station. It will help to increase accessibility for educational organizations. We pursue this goal through a portfolio of NASA's unique STEM experiential learning opportunities (e.g. grants, internships, fellowships, scholarships, workshops) and challenges. These create applications of NASA related knowledge encourage innovation, critical thinking, and problem solving skills, which are characteristics required of our Nation's future space STEM workforce.

Objective 1: Assure student participation in mission, design, operations, data interpretation and results reporting

Objective 1.1: Create foundational curriculum, use NASA's unique educational content where applicable

Objective 1.2: Support NASA's education priorities where possible

Objective 1.3: Assess interest of NM higher education institutions in developing student flight programs. Have institution appoint one liaison. Liaisons form institution teams; teams partner with NMSGC to develop student flight experiments or/and conduct related research activities.

Objective 1.4: Establish a team of volunteers committed to bringing STEM to K-12 and advancing knowledge of educators to increase teacher and student participation in student flight programs.

Objective 2: Work with launch operators to involve a mix of educational levels in student flight programs.

Objective 2.1: When available partner with launch providers to help support one opportunity for faculty research teams including students to participate in launch and expedition programs each year

Objective 2.2: Search and promote flight research opportunities through email notifications, social media, and on website

Objective 3: Develop spaceflight summer institute for educational institutions. Include visits to Spaceport America, AFRL, NASA WSTF, NMSU astronomical observatory. 100% of participants will create an experiment within 12 months.

Objective 3.1: Seek funding not only from participants but also from industry and State of New Mexico.

Objective 4.0: Inform statewide partners of NASA internship opportunities related to space

Objective 4.1: Recruit and poste on NMSGC website internships offered by NMSGC partners

Goal 2: Mission Focused Research/Funding/Economic Vitality

Promote and make strategic investments in diffusion-oriented research and commercialization of space technology programs in New Mexico. Foster a collaborative interdisciplinary environment that enables NMSGC achieve its mission

Objective 1: Seek State funding for NMSGC for matching funds in the amount of \$925,000 for 2015-2018.

Objective 2: Increase opportunities for economic vitality, research and funding by securing non-NASA funds equal to or exceeding \$925,000 by 2018.

Objective 2.1: Use NMSGC funds to support competitive awards

Objective 2.2: Fund research grants

Objective 2.3: Communicate success of seed grants

Objective 3: Fund mission focused research interdisciplinary diffusion-oriented research to enable commercial space technology development

Objective 4: Develop infrastructure and expertise to enable future New Mexico success in NASA and space focused research competitions

Objective 5: Expand state support for space related diffusion oriented research and startups. Foster innovative space and technology research that leads to expanding economic opportunities through direct action and recruit public and private sector partners.

Objective 6: NMSGC facilitates the emergence of LEO as an economic development zone through increasing the number of New Mexico commercial payloads on suborbital, ISS, CASIS, and satellite platforms linking New Mexico entrepreneurs with accelerators, incubators and other development opportunities, and strategic ventures with philanthropy, angel investors, and government agencies interested in space based solutions.

Goal 3: Promote and Engage

NMSGC will actively engage partners and stakeholders to raise and expand awareness of space related technology programs in order to significantly multiply the vibrant space ecosystem in New Mexico.

Objective 1: Foster linkages among NMSGC and Challenger Center programs related to microgravity research partners, for Spaceport America, CASIS and Virgin Galactic.

Objective 2: Develop a communication strategy to communicate the excitement of learning

Objective 2.2: Disseminate new learning materials

Objective 2.2.3: Focus on increasing current communication accomplishments in unique student launch programs and research

Resources:

Goal 1:

Objective #	Resource	Who Has it	Do you control it of have access to it		Skill Level 1 = no skill, 2 = some skill, 3 = can teach skill		
			Control	Access	1	2	3
1	La Luz Academy	AFRL	Vimal	Raybella	X		
1	Workshops for district admin. Regarding value and evaluations and space stuff	Henrietta Pichon	X	X			X
1	Felicia Nave, leading black scholar in STEM	Henrietta Pichon	X	X			X
1	WSTF engineers, scientists and technicians	NASA WSTF/Jacobs Joe Bullington		X		X	X
1	NMSU College of Education STEM office	Henrietta Pichon	X	X			X
1	Proposal writing	Michelle Banner	X				X
1.1	Common core and next generation lobby interests	Partnership for NM education Dr. Nader Vadiee	X	X			X
1.1	Grants Gov. and other expertise supporting	Grant applicant NMSGC website partners	X				X
1.1	Space grant teachers market space grant involvement	NMSGC website	X	X	X		
1.1	Teacher reverse shopping cart	James Dunn	X				X
1.1	Website basic development for teachers	James Dunn	X				X
1.1	ISS experiment access and constraints	Ed & Justin	X				X
1.1	Scope of NMSGC deliverables	NMSGC	X				X

1.1	Teacher classroom resources	parents, school, local businesses		X	X		
1.1	Proposal writing	Pat Hynes		X			X
1.1	Fly rockets to market STEM course	Individual teachers & James Dunn		X		X	
1.1	Tie teacher evaluations to space lesson plans	Individual teachers & James Dunn	X				X
1.1	Rocketry/Payload Teachers	T or C R. Schnyder		X		X	X
1.1 & 1.2	CASIS fellows	CASIS	X				X
1.1-4	Science teachers	LCPS Wendy Miller-Tomlinson	X			X	
1.2	Business incubation	STM, ABQ innovate James Dunn		X	X		
1.2	State assembly	James Dunn		X	X		
1.2	Student rocket	NMT Zagrai/Ostergren		X		X	
1.2	ISS seed grants	CASIS	X				X
1.2	ISS on-orbit access	CASIS	X				X
1.2	NCESSE partnership	CASIS		X		X	
1.2	Launch hosting	Spaceport America	X			X	
1.2	Ride brokering	Spaceport America		X		X	
1.2	Scientific/engineering guidance	Spaceport America	X				X
1.2	Students research what NASA wants	Space Grant Pat Hynes	X				X
1.2 & 2.3	Student launch event SOI	Space Grant Pat Hynes	X				X
1.3	SG SOI \$ (middle schools)	Space Grant Pat Hynes \$ ends 5/2015	X				X
1.3	Innoventure student innovation/entrepreneurship	Arrowhead Center Marie Borchert	X			X	
1.4	Las Cruces Public Schools science specialists	LCPS Wendy Miller-Tomlinson		X		X	X
1.7	INSGC (student experiments → ISS)	Michelle Banner (contact)		X			
3	Assistance w/ grant writing, especially w/ regarding diverse population	Henrietta Pichon	X	X		X	

Goal 2:

	Resource	Who Has it	Do you control it of have access to it		Skill Level 1 = no skill, 2 = some skill, 3 = can teach skill		
			Control	Access	1	2	3
2	Satwest space internet payloads	Brian B.	X	X			X
2	Satwest commercial space history lectures	Brian B. entrepreneur	X	X			X
2	Proposal writing (all objs.)	Michelle Banner	X				X
2	Film marketing	Andre Koslowski producer	X				X
2	Student AIAA/ASME chapter	NMT Zagrai/Yilmaz		X		X	
2	Optical telescope	NMT Ryan	X				X
2	Proposals	NMT Romero/Ostergren		X		X	
2	Center for leadership in technology	NMT Anselmo	X				X
2	Startup, Entrepreneurial support	NM EDD	X	X			X
2.1.1	Business development incentives	NMEDD	X	X			X
2.2	Development space at SA	Spaceport America	X		X		
2.2	ISS access	CASIS	X				X
2.2	National accelerators	CASIS		X		X	
2.2 & 2.3	Seed grants	CASIS	X				X
2.3	ISS savvy angels	CASIS		X			X
2.4 & 2.3	Arrowhead launch POCC	AHC Jason Koenig	X		X		
2.4	Studio G Student business incubator	AHC Jason Koenig	X		X		
2.4	ATI business incubator	AHC Zetdi Sloan	X		X		
2.4	Arrowhead park	AHC Wayne Savage	X		X		
2.4	Industry services and commercialization	AHC Jorge Ramos	X		X		
2.4	R,D,T, and E hosting	Spaceport America	X				X

Goal 3:

Goal & Objective #	Resource	Who Has it	Do you control it of have access to it		Skill Level 1 = no skill, 2 = some skill, 3 = can teach skill		
			Control	Access	1	2	3
2	ADS publicize grants	All research offices at UNM Jeff B.	X	X		X	
2	ADS. Publicize science fair	All research offices at UNM Jeff B.	X	X		X	
2	Social media assets	CASIS (Austin Jordan)	X				X
2	“Space is in it” brand	CASIS	X				X
2	ISS Program PAO	CASIS		X		X	
2	Proposal Writing (all objs.)	Michele Banner	X				X
2	AFRL intern program	Allen Lovell Thomas Lovell and Kirtland	AF mil	X			X
1	Partner Las Cruces Challenger T or C		X	X		X	X
1	LCPS Challenger CTR/W. Miller-Tomlinson		X			X	

Participants:

NMSU	Vimal Chaitanya
NMSU	Henrietta Pichon
UNM	Chip Shearer
NMSU	Jeff Brown
NM Tech	Warren Ostergren
NM Tech	Dave Westpfahl
DACC	Saundra Castillo
SIPI	Nader Vadiee
SIPI	James Dunn
NMSGC	Pat Hynes
NMSGC	Joylynn Watkins
NMSGC	Susan Raitt
Arrowhead Center	Wayne Savage
Spaceport America	Bill Gutman
Jacobs	Joe Bullington
CASIS	Ed Harris
CASIS	Justin Kugler
SatWest	Brian Barnett
Hot Springs High School	Raybella Schnyder
NM Econ. Dev.	Christina Logan
Consultant	Michelle Banner
Consultant	Keith Beck
MVEDA	Eric Montgomery
Virgin Galactic	Jonathan Firth
Director of Secondary Instruction LCPS	Wendi Miller-Tomlinson
Dona Ana County Commissioner	Billy Garrett